Poster 604

Behavioral risk before, during and after hepatitis C treatment among MSM with HIV before and in the direct-acting antiviral era

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Background

With the introduction of direct-acting antivirals (DAA), almost all individuals with hepatitis C virus (HCV) can be cured with well-tolerated regimens. Given the simplified regimens and higher cure rates offered by DAAs, men who have sex with men (MSM) may be less prone to behavioral changes following HCV treatment than compared to the less-tolerated interferon (IFN) regimens with lower cure rates.

Objectives

To understand ongoing HCV risk behavior before, during and following treatment with IFN- or DAA-based regimens.

Methods

Study design and participants

MOSAIC study was a prospective, observational cohort. Participants were eligible if they

- Were MSM aged ≥18 years with HIV who had an acute HCV infection
- Received any HCV treatment and had ≥2 study visits.

Statistical analysis

- Time was categorized as: pre-, during and post-treatment and risk behavior was compared between IFN vs. DAA-based (IFN-free) treatment regimens across these time periods.
- Risk behavior was determined by the HCV-MOSAIC risk score and individual risk behaviors included in the score [1]. A risk score ≥2.0 was considered as being at risk for HCV reinfection.
- Linear/logistic regression with Generalized Estimating Equations were used.
- Changes in behavior post treatment during continuous time were investigated in a separate model, while comparing treatment regimens.

[1] *Newsum et al. Development and validation of the HCV-MOSAIC risk score to assist testing for acute hepatitis C virus (HCV) infection in HIV-infected men who have sex with men (MSM). Euro Surveill. 2017;22(21).*

Results (updated)

- N=141 MSM were included with 181 HCV infections and 176 treatment episodes.
- Median years of follow-up pre-, during and post-treatment were 1.0 (interquartile range (IQR)=0.5-3.7), 0.5 (IQR=0.3-0.5) and 2.1 (IQR=0.9-4.1), respectively.
- Across timepoints, MSM who were treated with DAAs had overall higher risk behavior compared to MSM treated with IFN when analyzing the mean HCV-MOSAIC risk score (Figure 1) and proportions of individuals engaging in individual risk behaviors, except for ulcerative STI (Table 2).
- When considering time as a continuous variable post-treatment, no changes in behavioral endpoints between treated regimen were found. However, behavioral endpoints did change over time for MSM treated with IFN for the mean HCV-MOSAIC risk score and receptive condomless anal sex (CAS) (both p<0.01).

Table 1. Characteristics of MSM with HIV at first study visit since enrollment per treatment episode between 2009-2018 in the MOSAIC study

Variables[a]	IFN (n=106)	DAA (n=70)
Age in years, median (IQR)	43.5 (39-49)	45 (41-50)
Dutch origin	87 (82.1)	60 (87.0)
Higher educational level	63 (73.3)	44 (67.7)
Period		
Pre treatment	65 (61.3)	40 (57.1)
During treatment	15 (14.2)	13 (18.6)
Post treatment	26 (24.5)	17 (24.3)
Receptive CAS[b]	73 (68.9)	56 (80.0)
Sharing sex toys	25 (23.6)	22 (31.4)
Unprotected fisting	38 (35.9)	31 (44.3)
IDU[c]	12 (11.3)	10 (14.3)
Sharing straws	30 (28.3)	25 (35.7)
Ulcerative STI[d]	23 (21.7)	16 (22.9)
Risk score, median (IQR)	2.0 (0.0-3.5)	2.3 (1.1-3.5)

[a] n (%), unless otherwise indicated; CAS, condomless anal sex; IDU, injecting drug use; STI, sexually transmitted infection

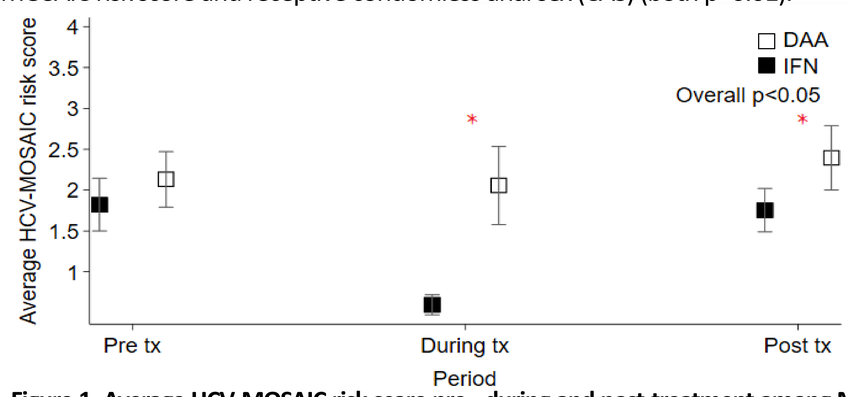

Figure 1. Average HCV-MOSAIC risk score pre-, during and post-treatment among MSM treated with IFN and DAAs with 95%CI.

** Statistically significant between treatment regimen at given time period*

Table 2. Mean proportion of MSM with HIV treated with IFN and DAAs engaging in individual risk behaviors across time periods.

Risk behavior		Pre tx	During tx	Post tx	Overall *p*
Receptive CAS	IFN	62.2%	24.8%*	66.9%	<0.01
	DAAs	72.3%	71.9%*	75.5%	
Sharing sex toys	IFN	22.4%	5.1%*	18.8%*	<0.01
	DAAs	35.6%	22.7%*	33.4%*	
Unprotected fisting	IFN	28.5%	12.1%*	31.8%	<0.01
	DAAs	34.5%	38.8%*	40.3%	
IDU	IFN	7.3%	1.7%*	10.5%*	<0.01
	DAAs	3.7%	14.1%*	20.7%*	
Sharing straws	IFN	31.5%	6.9%*	13.4%*	<0.01
	DAAs	36.8%	26.2%*	25.1%*	
Ulcerative STI	IFN	11.6%	3.1%*	18.4%	0.11
	DAAs	11.4%	12.8%*	21.7%	

**Statistically significant between treatment regimen at given time period*
CAS, condomless anal sex; IDU, injecting drug; STI, sexually transmitted infection

Conclusions (updated)

- We found differences in behaviors among MSM treated with IFN and DAA during and post-treatment, where MSM treated with DAA were at higher risk of HCV reinfection.
- As a large proportion of MSM treated with DAAs are at risk of HCV reinfection (i.e., score ≥2.0) post-treatment, there is a need for ongoing HCV testing and behavioral interventions.